

sometimes with a calculated indifference, against some inner consciousness of weakness; the man of 'inspiration' as a schizoid, finding relief from an intolerable reality in dreams; and the prophet as a mixed cycloid-schizoid type in which the exuberance and realism of the cycloid get the upper hand. The artist is studied in Goethe, the scientist in Count Zeppelin and Robert Mayer, the hero in Bismarck and Luther, the man of inspiration in Hölderlin, and the prophet in Rousseau. The selections are naturally quite good ones from Kretschmer's point of view, but they seem a little odd in some cases.

The third part of the book will be as attractive as any other to most readers. For it consists of a most interesting collection of portraits, all of them arranged to illustrate Kretschmer's theories of types. These pictures are most excellently reproduced.

The book as a whole adds nothing whatever to Kretschmer's already published and much discussed views. His treatment has all the advantages and disadvantages of sharp schematization. To many people his use of the cyclothyme-schizothyme dichotomy, even when all the intermediate forms are included, seems based upon rather superficial clinical observations. It may be true enough to say that on the whole the genius represents a hybrid type, but this amounts to little more than saying that he commonly has, throughout his life, characteristics which remain not perfectly reconciled one to another. In certain cases these characteristics are, no doubt, what Kretschmer says they are; in other cases they may be different. And they are never the whole story. Still, this is an excellent essay of the popular kind. Every reader will agree with some things and disagree with others, and nobody can fail to enjoy the vigorous writing and the clever character studies.

The translator deserves notice. Dr. Cattell has done his work extraordinarily well. It is a free translation, perhaps some people may think a little bit too free in places. But it reads very nearly as if it

had all been first written in English, and the spirit and 'go' of the original are unusually well retained.

F. C. BARTLETT.

RACE AND ALCOHOL

Frets, Dr. G. P. *Alcohol and the other Germ Poisons.* The Hague, 1931. Martinus Nijhoff. Pp. i-viii+1-179. Price 6 gld. (cloth 7.60 gld.).

THE subject treated in this volume is of great practical importance as well as of great biological interest. Dr. Frets has performed a notable service in bringing together the scattered literature, both clinical and experimental. The book comprises a descriptive and critical review with an extensive bibliography, and will undoubtedly be of much service to students in this and related fields.

There is often much confusion about the use of the term "germ poison," so it may be as well to explain precisely what is meant, especially as Dr. Frets gives the term a rather extended meaning. A toxic substance might act on the germ cells, ova and spermatozoa, so as either to kill them or, on the other hand, if the injury is less severe, so as to weaken them, the result in that case being defective offspring following fertilization. Further, the damage might be confined to the bodies of such offspring themselves (phenotypical effect) or might involve the hereditary mechanism of the germ cells, in which case defects might be transmitted to future generations. Both types of germ cell damage are often called "blastophoria," but the two types should be sharply distinguished. In addition to this effect on the germ cells the toxic agent might affect the developing embryo. This last effect does not differ in principle from the effect of a toxic agent on the body of an adult, except that in the higher animals it is an injury that is produced indirectly through the body of the mother.

The greater part of the book deals with alcohol, and in the case of all the effects

mentioned above Dr. Frets reviews the literature in detail, not excepting observations on pathological changes in the sex organs. As regards blastophthoria in the hereditary and transmissible sense, Dr. Frets, as a reviewer of experimental literature, is rightly dubious that any such effect has ever been demonstrated. Dr. Frets as a reviewer of clinical observations adopts a less non-committal attitude. It may be doubted if his point of view will prove acceptable to many. Those who proclaim that alcohol and other substances are deadly racial poisons, often on the most slender grounds, will be irritated by his caution, while those who consider that X-rays and radium are the only agents that have been proved to induce mutation will feel that he accepts too much.

The direct effect of alcohol on the germ cells resulting in weakened progeny (a non-transmissible effect) is a more difficult field. The possibility of a blastophthoric effect of this sort is hardly in doubt, though it would appear that it is much more usual to find that the germ cells are either killed, or are left unaffected. The experiments of O. Hertwig are a good example of blastophthoria in the restricted sense. Frog sperm immersed in 0.3 per cent. chloral hydrate for half an hour proved capable of fertilizing eggs. All the young, however, were pathological. Controls were normal. In the higher animals it is necessary to make tests using treated males and untreated females, because if females are treated the effect on the germ cell cannot be distinguished from the effect on the embryo.

Several experimentalists have claimed an effect from using treated males only. This has been vigorously denied by others using similar techniques. There is agreement that the fertility of males can be reduced by treatment if sufficiently severe. The production of defective offspring amongst the progeny of treated males in the higher animals is much more dubious. The results of different workers are conflicting, and different stocks of experimental animals may prove widely different in their response.

A fundamental difficulty in deducing

practical conclusions applicable to man is the doubt as to whether the conditions of experiment reproduce at all closely those obtaining in the bodies of consumers of alcohol. One would imagine that the concentration of alcohol in the blood would be the best index, but continuous observation on these lines presents obvious difficulties. Bilski has noted that the blood of frogs kept in alcoholized water rapidly assumes the same concentration as the water, but unfortunately in other respects the frog is not ideal as experimental material. Taking the evidence as a whole, the reader will probably be left with the impression that even if effects are produced in certain cases by massive dosage there is little evidence of any effect either directly on the sperm *in vitro*, or as measured by the progeny of treated males in those cases in which the concentration of alcohol is comparable with that existing in the blood of even heavy consumers.

A direct influence upon the developing embryo within the body of the mother is altogether more probable, but it may be doubted whether the clinical evidence supports the conclusion that the effect is as severe as might be anticipated. In fact, the clinical evidence as presented by many writers proves altogether too much to be credible. The emphasis with which certain writers claim that the effect hardly differs when either father or mother is alcoholic merely suggests a doubt as to the magnitude of the injury in the case of the pregnant woman.

Dr. Frets is on the whole both clear and fair in his review, but his criticism, always restrained, is certainly directed far more pointedly at the results of those who find alcohol of smaller importance, rather than at contrary results. He appears to express approval of the conclusions of Laitinen, who, as judged by the papers reviewed, seems to be able in every field to go one better than any other observer, while Pearson and Pearl are subjected to minute criticism.

The clinical evidence is voluminous, and while much is of value, there is much that is entirely inconclusive. The worst observa-

tions are probably those dealing with the evil effects of conception occurring during a state of drunkenness. Evidence obtained by the questioning of patients on this point is anecdotalism at its worst and most useless. One does not gather that the mothers in any instance were questioned *before* the birth of their malformed and sickly young.

The literature dealing with the effect of alleged germ poisons other than alcohol is also reviewed. Lead, mercury, caffeine, nicotine, and several others, are included. About some of them little is known, but in the case of lead one is left with the impression that, taking into consideration the far smaller body of observations, the hope of demonstrating a more profound phenotypic blastophtoric effect is brighter than in the case of alcohol. It is possible that experimental work with lead would lay a much surer foundation for subsequent more subtle and more practically important inquiries into the effect of alcohol.

J. A. FRASER ROBERTS.

SEXUAL RESEARCH

Greenwood, A. W., Ph.D., M.Sc., F.R.S.E. (Editor). *Proceedings of the Second International Congress for Sex Research, London, 1930.* Edinburgh, 1931. Oliver and Boyd. Pp. xii+637. Price 21s.

THIS handsome and well illustrated volume consists of a collection of nearly all the papers, some eighty in all, read before the International Congress for Sex Research held in London in 1930. The papers are classified under five main heads: (1) Biology, (2) Hormones, (3) Therapy, (4) Contraception, and (5) Sociology. Those in the biological group are further divided according to the kinds of organisms to which they relate, that on sex control with Cladocera by A. M. Banta being included under the heading of Insects—a classification which is suggestive of that of the railway company. On the whole, however, the

subject-matter is well and conveniently arranged, but the absence of an index is to be regretted.

As was to be expected, the papers are of unequal merit. Some of them are little more than abstracts of previously issued work, some are highly theoretical and were read to invite discussion, but a certain number contain records of original observations which are published here for the first time. In his opening address the President, Professor F. A. E. Crew, does well to call attention to the difference between puberty and maturity which may be distinct physiological states occurring separately in time. Thus, in the mouse, with which the paper chiefly deals, puberty occurs before maturity, the onset of which is gradual. The point is of great importance both to the sexual physiology of man and to that of the domestic animals and has an obvious bearing on the question as to the advisability of using sires of early age (e.g. ram lambs) for purposes of breeding. In this connection it may be pointed out that in some animals (e.g. the stickleback as shown by Craig-Bennett) the order of development of the sexual and reproductive processes is reversed, for complete spermatogenesis may be accomplished prior to the complete attainment of sexual maturity and the capacity for seminal ejaculation.

Professor Ch. Champy, in a paper of considerable interest, has drawn attention to the fact that organs providing means of recognition between individual animals belong to two different categories—those which serve the purpose of rendering the individuals of a species aware of one another's presence and those which have a definite sexual character, being indicators of sexual condition. Thus in the rabbit there appear to be scent glands of two kinds, the anal glands, which exist for purposes of general recognition independently of sexual attraction, and the pre-anal glands, the secretion which occurs especially during œstrus. It is noteworthy further that castration inhibits the growth or activity. Mr. J. T. Cunningham's paper on the evolution of secondary sexual characters